

ABSTRACT

A method of using error diffusion to generate a halftone image for an output device having capabilities to attenuate or modulate tone at a sub-pixel level. A lookup table is created, indexed based on possible exposure characteristics of pixels neighboring the pixel currently being processed. The lookup table, so indexed, outputs allowable exposure configurations for the pixel currently being processed, which allowable configurations are consequent to sub-pixel modulation capabilities of the output device. An exposure configuration is selected from the allowable configurations by comparison of a modified input value for the current pixel to the allowable configurations. The selected exposure configuration is then applied, and the modified input value and exposure value are differenced to generate a new error value to propagate forward in the error diffusion process. The process is repeated sequentially for each pixel according to the error diffusion technique employed.